What is claimed is:

1. A method for measuring a device within a wideband range, said method comprising:

step 1: providing a pulse by a pulse generator then inputting said pulse into an impulse forming network to generate an ultra-short impulse;

step 2: controlling an amplitude of said impulse by an attenuator;

step 3: selecting a signal to a path of said device via a switch;

step 4: providing bias to said device by a power supply;

step 5: simultaneously inputting said signal into said device and a high-bandwidth oscilloscope;

step 6: transmitting a reflective response of said device through a bias device and a power divider to said high-bandwidth oscilloscope;

step 7: transmitting a transmissive response of said device through a bias device and a power divider to said high-bandwidth oscilloscope;

step 8: displaying said input, reflective and transmissive responses on said high-bandwidth oscilloscope.

2. The method according to claim 1, wherein said device of step 3 is an active or a passive device.

3. The active device according to claim 2 could be MOSFET, BJT, HBT, or diode.

4. The active device according to claim 2 could be resistor, capacitor, inductor, transmission line or IC package.

5. The method according to claim 1 further uses a signal having a rise time or a fall time within 1 ns.

6. A method for utilizing a Layer Peeling Technique to build a spiral inductor

wideband equivalent circuit, said method comprising:

step 1: inputting a ultra-short impulse to a inductor;

step 2: measuring a reflective and a transmissive response of said impulse;

step 3: building a corresponding equivalent circuit model by said reflective and transmissive responses;

step 4: establishing and extracting impedances of a plurality of transmission lines;

step 5: transforming said impedance of said transmission line to LC equivalent circuit model;

step 6: combining parasitic equivalent circuit elements device and extracting parameters by comparing with said measurement;

step 7: concluding results of the steps depicted above.

7. The method according to claim 6, wherein said step 4 could be simplified to merely comprise a signal path of a first reflection and a first transmission.

8. The method according to claim 6, wherein said LC equivalent circuit model is composed of n pieces of inductor Ln and capacitor Cn; Ln=Zn×Tpdn Cn=Yn × Tpdn,wherein Yn= $\frac{1}{Zn}$, Tpdn is transmission time of the nth transmission line.

9. A method for building an equivalent circuit model of MOSFET comprising:

step 1: inputting a ultra-short impulse to a device;

step 2: measuring a reflective and a transmissive response of said impulse;

step 3: building a corresponding equivalent circuit model of MOSFET by said reflective and transmissive responses;

step 4: simulating a response of said device by utilizing said equivalent circuit model of MOSFET and a circuit structure for extracting parameter;

step 5: depicting a measurement by a correct parameter extracting from comparing the simulation with the measurement;

step 6: concluding results of the steps depicted above.

10. The method according to claim 9, wherein said wideband equivalent circuit model of MOSFET is combined with BSIM3v3 for conveniently simulating and simultaneously providing a solution to a wideband requirement without affecting a DC operation point; said wideband equivalent circuit model of MOSFET includes R, L and C elements at Gate and Drain.

11. The model elements according to claim 10, wherein said R elements comprise rd1, rd2, rd3 and rg2; L elements comprise Ld and Lg; C elements comprise Cg, Cd1 and Cd2; at Drain, Ld is shunted with rd1, Cd1 is in series with rd2, Cd2 is in series with rd3; at Gate, Cg is shunted with rg2, Lg is in series with rg1, rg2 and Cg are in series with rg1 and Lg.

12. The method according to claim 9, wherein the circuit structure for extracting a parameter comprises a bias circuit, a transmission line and a dependent voltage source.

13. The wideband equivalent circuit model according to claim 9 is applied to PMOSFET.

14. The wideband equivalent circuit model according to claim 9 is applied to NMOSFET.

15. A method for building a wideband equivalent circuit model of semiconductor comprising the method according to claim 1 and the steps as following:

step 1: building a corresponding equivalent circuit model according to physical characteristics of different elements by a reflective and a transmissive response of said impulse;

step 2: extracting parameter from comparing the simulation with the measurement of the equivalent circuit model;

step 3: concluding results of the steps depicted above.